

## Military seeks test for brain injury

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By Joyce Howard Price  
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The Pentagon is funding research to develop a blood test to gauge the severity of head wounds while the victim is still on the battlefield.

"The head is less than 9 percent of the body, yet it gives us 25 percent of the [combat] hits," said Lt. Col. Geoffrey Ling, a physician and director of neuro-intensive care at the Walter Reed Army Medical Center. "What's more, over 50 percent of the soldiers who die [from combat wounds] after reaching medical care have head injuries."

Yet the military has no diagnostic tool to help a combat medic in the field determine if a soldier suffering from a head wound has any chance of survival and should be transported to a hospital.

"If we have a few drops of blood and can use that to determine whether someone [with a head wound] is mildly, severely or moderately injured, that would be a huge contribution to decision-making" by a medic on the battlefield, Col. Ling said Friday in an interview.

The Army neurologist is keeping close tabs on the progress of the research, financed by \$2.2 million from the Department of Defense. The work is a collaborative effort by scientists at the Walter Reed Army Institute of Research in Silver Spring and the University of Florida's McKnight Brain Institute.

The university states in a news release that soldiers "fighting in today's high-tech military force will be much more likely to survive traumatic brain injury" if the researchers are successful in developing the blood test.

Col. Ling agrees, but he said the technology also will help medics identify soldiers who can't be saved.

Because the medical and surgical facilities are "pretty far away from the battlefield," medics need to know if wounded servicemen can survive the flight and beyond, he said.

"They've got to make sure a soldier can benefit."

Col. Ling said the blood test would give medics "objective information to make critical triage decisions" and help them "determine whether a person should be treated at a high or low category" of care.

"It could help us determine who has a brain injury and how bad it is. After all, there are no CT scans nor ultrasound in the field," the doctor said.

Ronald Hayes, one of the University of Florida's lead researchers, said the test still is in development and would not be ready for use in the coming months.

"But we hope to have something out for clinical testing in 18 months to two years," Mr. Hayes, director of the university's Center for Traumatic Brain Injury Studies, said in a telephone interview.

Heading the scientific investigation at the Walter Reed research institute is Frank C.

Tortella, chief of neuropharmacology and molecular biology. At the University of Florida, the other top researcher is Kevin K.W. Wang, an associate professor in the departments of psychiatry and neuroscience. Mr. Hayes, Mr. Tortella and Mr. Wang all hold Ph.Ds.

Mr. Hayes said his project is "embedded in work we've been doing for more than 20 years." It's the "culmination of studies about how the brain injures itself, once it's damaged physically," he said.

Mr. Hayes said the blood test "looks for fragments of protein that are chewed up," because they can be biochemical "markers, clues to the murder of the cells."

Such an analysis could be obtained, Mr. Hayes said, simply by taking a small amount of a soldier's blood and placing it in a device about the size of a hand-held computer.

Mr. Wang estimates the test will cost about \$175 per application.

Head injuries are common in combat situations for several reasons, Col. Ling said.

"We can armor the chest and arms and legs pretty well these days. Helmets today are pretty good, but they can't give 100 percent coverage, since soldiers have to hear and see."

In combat, the head is vulnerable even with a helmet, Col. Ling said, "since you have to put your head up to fire a gun."